hybridization, and the DNA probes and the DNA fragments are hybridized. The temperature at which the hybridization of the DNA probes and the DNA fragments is most efficiently accomplished and non-specific hybridization can hardly take place is determined in advance between 55 and 65°C to be set for the solution. After the hybridizing reaction, DNA fragments not hybridized at normal temperature are discharged out of the DNA detecting cell using as the cleaning solution 20 mM phosphoric acid buffer solution (pH 7.0) to which 0.05% TWEEN 20 has been added. TWEEN 200 is a commercially available polysorbate surfactant.

IN THE CLAIMS

Please cancel claims 1-14 and 20-25 without prejudice or disclaimer, and add new claims 30-48 as follows.

30. (New) A polynucleotide assay apparatus comprising: a polynucleotide detecting cell provided with a first plate whereon a first electrode is formed and a second plate whereon a second electrode is formed, wherein the surface of said first electrode is divided into plurality of areas, to each of which DNA probes having a different base sequence are fixed, said second electrode is arranged opposite to said first electrode with a predetermined distance, said second